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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/076,737	02/14/2002	Stephen G. Gonzalez	8033090	2068

7590 01/09/2004  
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EXAMINER

SUN, XIUQIN

ART UNIT	PAPER NUMBER
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2863

DATE MAILED: 01/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/076,737

Applicant(s)

GONZALEZ ET AL.

Examiner

Xiuqin Sun

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,4,6 and 8-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,4,6 and 8-15 is/are allowed.
- 6) ☒ Claim(s) 16-20 is/are rejected.
- 7) ☒ Claim(s) 21-23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other:

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parsoneault et al. (U.S. Pat. No. 5678929) in view of Ide et al. (U.S. Pat. No. 5459674).

Parsoneault et al. teach a grooved hydrodynamic bearing arrangement having one or more hydrodynamic bearing surfaces (see Abstract; col. 1, line 66 to col. 2, line 15; col. 2, line 43 to col. 3, line 67; and col. 4, lines 11-34), comprising; said one or more hydrodynamic bearings that can rotate about a longitudinal axis (col. 4, lines 5-10 and col. 5, lines 7-15). Parsoneault et al. further teach that said arrangement includes at least one hydrodynamic groove (col. 4, lines 63-67 and col. 5, lines 1-6); said at least one hydrodynamic groove comprises sinusoidal hydrodynamic grooves, herringbone hydrodynamic grooves (col. 4, lines 63-67 and col. 5, lines 1-6); said surfaces are disposed on a shaft on a disc drive (col. 1, lines 66-67; col. 2, lines 1-15; col. 2, lines 43-67 and col. 3, lines 1-67).

Parsonneault et al. do not disclose explicitly that: measuring the topology of one or more hydrodynamic bearing surfaces, comprising; measuring the surface topology of the one or more hydrodynamic bearings; determining at least one reference plane; determining the dimensions of features disposed upon the surface; said surface measuring means comprises an edge-detecting means for analyzing the data to determine at least one edge of at least one hydrodynamic groove disposed on the hydrodynamic bearing; said means for determining the dimensions of features comprises data processing means for processing data received from measuring the surface topology and an edge-detecting means for analyzing the data to determine at least one edge of at least one hydrodynamic groove disposed on the hydrodynamic bearing.

Ide et al. teach a method and apparatus for measuring the topology of one or more hydrodynamic bearing surfaces (col. 7, lines 36-67 and col. 8, lines 1-21), comprising; measuring the surface of the one or more hydrodynamic bearings (col. 7, lines 36-67 and col. 8, lines 1-21); determining at least one reference plane (col. 7, lines 36-67; col. 8, lines 1-21; col. 19, lines 55-67 and col. 20, lines 1-5); and establishing at least one dimension of at least one feature disposed on the one or more hydrodynamic bearing surfaces (col. 7, lines 36-67; col. 8, lines 1-21; col. 20, lines 6-43 and col. 56, lines 34-42). Ide et al. further teach that: said establishing the dimensions of at least one feature comprises determining the reference plane from data acquired during the measuring of the surface of the one or more hydrodynamic bearings (col. 7, lines 36-67; col. 8, lines 1-21; col. 20, lines 6-43 and col. 56, lines 34-42); said surface measuring

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means comprises an edge-detecting means for analyzing the data to determine at least one edge of at least one hydrodynamic groove disposed on the hydrodynamic bearing (col. 7, lines 36-67; col. 8, lines 1-21 and col. 1, lines 54-65); said means for determining the dimensions of features comprises data processing means for processing data received from measuring the surface topology and an edge-detecting means for analyzing the data to determine at least one edge of at least one hydrodynamic groove disposed on the hydrodynamic bearing (col. 7, lines 36-67; col. 8, lines 1-21, col. 20, lines 6-43, and col. 56, lines 34-42 and col. 1, lines 54-65).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teachings of Ide surface measuring and data processing techniques in the Parsonneault et al. arrangement in order to provide an apparatus for measuring the surface of a hydrodynamic bearing of a disc drive numerically (Ide, col. 6, lines 20-44).

#### ***Allowable Subject Matter***

3. Claims 21- 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
4. Claims 1, 4, 6 and 8-15 are allowed.

#### ***Reasons for Allowance***

5. The following is an examiner's statement of reasons for allowance:

The primary reason for the allowance of claim 1 is the claimed method step of establishing at least one dimension of at least one groove disposed on the one or more hydrodynamic bearing surfaces, including determining a ratio of a width of at least one hydrodynamic groove to the distance between the at least one hydrodynamic groove and at least one adjacent hydrodynamic groove. It is this step found in the claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

The primary reason for the allowance of claim 4 is the inclusion of the method step of establishing at least one dimension of at least one groove disposed on the one or more hydrodynamic bearing surfaces, including determining at least one of a width, a depth, and a position of the at least one hydrodynamic groove with respect to the at least one reference plane. It is this step found in the claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

The primary reason for the allowance of claim 6 is the inclusion of the method step of establishing at least one dimension of at least one groove disposed on the one or more hydrodynamic bearing surfaces, including establishing the dimensions of at least one feature including determining the reference plane from data acquired during the measuring of the surface of the one or more hydrodynamic bearings and establishing the dimensions of the at least one feature, including establishing a distance from the reference plane wherein the distance defines a leading edge or trailing edge of at least one hydrodynamic groove. It is this step found in the claim, as it is claimed in

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the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

The primary reason for the allowance of claims 8-15 is the claimed method step of determining the angular position of the hydrodynamic grooves along the circumference of the hydrodynamic bearing with respect to the longitudinal axis. It is this limitation found in each of the claims, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.

The primary reason for the allowance of claim 21 is the inclusion of the limitation of determining a ratio of a width of at least one hydrodynamic groove to the distance between the at least one hydrodynamic groove and at least one adjacent hydrodynamic groove. It is this limitation found in the claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

The primary reason for the allowance of claim 22 is the inclusion of the limitation of establishing the dimensions of at least one feature including determining the reference plan from data acquired during the measuring of the surface of the one or more hydrodynamic bearings and establishing the dimensions of the at least one feature including establishing a distance from the reference plane wherein the distance defines a leading edge or trailing edge of at least one hydrodynamic groove. It is this limitation found in the claim, as it is claimed in the combination that has not been found,

taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

The primary reason for the allowance of claim 23 is the inclusion of the limitation of determining at least one of a width, a depth, and a position of the at least one hydrodynamic groove with respect to the at least one reference plane. It is this limitation found in the claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Response to Arguments***

6. Applicant's arguments with respect to claims 16-20 have been considered but are not persuasive.

Regarding to applicant's arguments in page 6, paragraph 5, Examiner respectfully disagrees. It is contended that the claimed subject matter and limitations have already been taught or suggested or disclosed by the Parsonneault and Ide references listed and reasoned above. In particular, the claimed means for measuring surface topology and the means for determining the dimensions of features disposed on the surface are considered broader than the limitations that are needed to carry out the steps recited in claims 1, 4 and 6, and are rendered obvious by the applied prior art



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noted above.

### ***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

### ***Contact Information***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xiuqin Sun whose telephone number is (703)305-3467. The examiner can normally be reached on 7:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (703)308-3126. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9306.

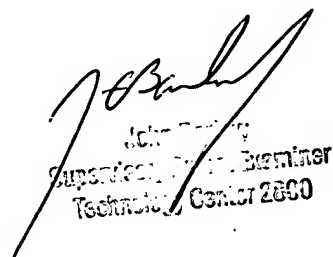
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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

XS

X.S

January 3, 2004

  
John S. Smith  
Supervisory Patent Examiner  
Technology Center 2860